

Pressure relief valve type V 85 and type V 185



Body material	PVC-U	PP	PVDF
Material of diaphragm	• EPDM ¹⁾	• PTFE with EPDM cushion	
Working temperatur	0 °C up to 60 °C	- 10 °C up to 80 °C	- 20 °C up to 100 °C
Nominal size / pressure class	Type V 185: DN 15 up to DN 50 / PN 10 (adjustment range: 0,5 – 9 bar) Type V 85: DN 65 up to DN 80 / PN 6 (adjustment range: 0,5 – 6 bar) Type V 85: DN 100 / PN 4 (adjustment range: 1 – 4 bar)		
Connection with pipe	<ul style="list-style-type: none"> • Cement- / Welding spigot • Flange connection acc. to DIN EN 1092-1 (replaces DIN 2501) - PN 10 (16) ^{*)} • True union with cement- / welding socket (DN 15 – DN 50) • True union with spigot (DN 15 – DN 50) 		
Length	Company standard		

^{*)} also acc. to ANSI available

¹⁾ available for type V 85, DN 65 – DN 100

Example for an invitation to tender text:

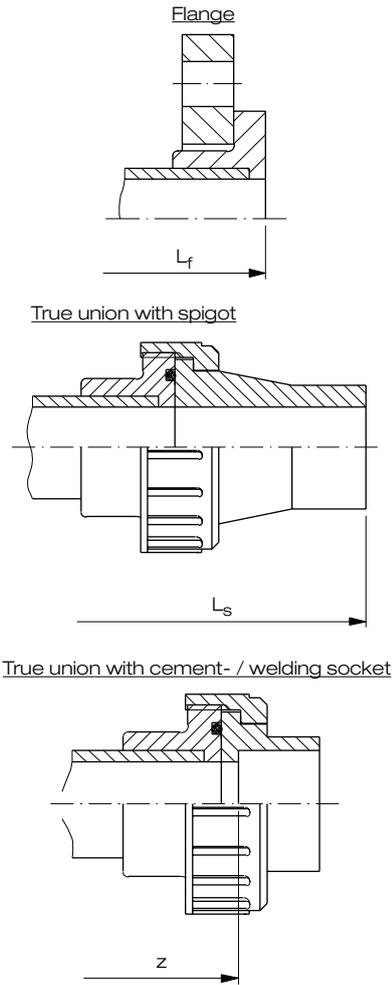
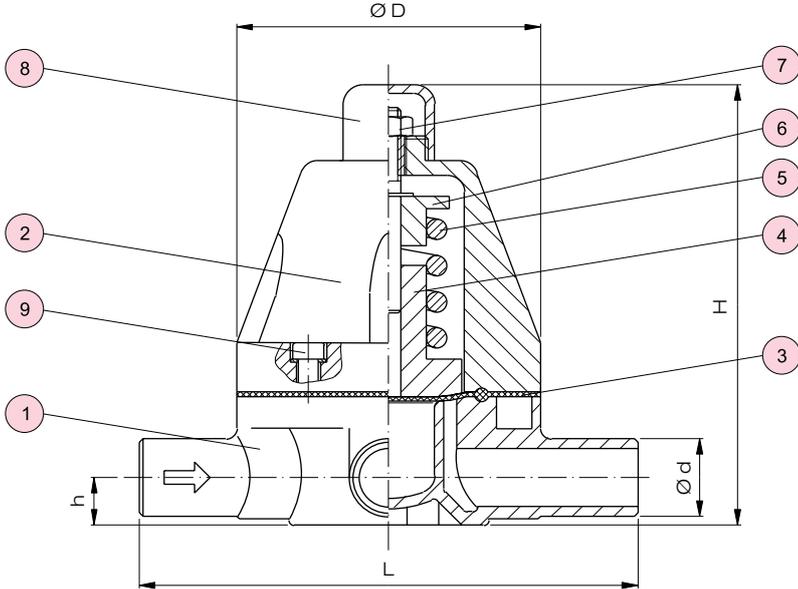
Pressure relief valve type V 185, DN 50, PN 10, PVC-U / PTFE, flange connection acc. to DIN EN 1092-1 - PN 10, adjustment range 0,5 bar to 9 bar

Document: FRANK_DB_L7_Überströmventil Typ V 85 und Typ V 185_11-2020_EN

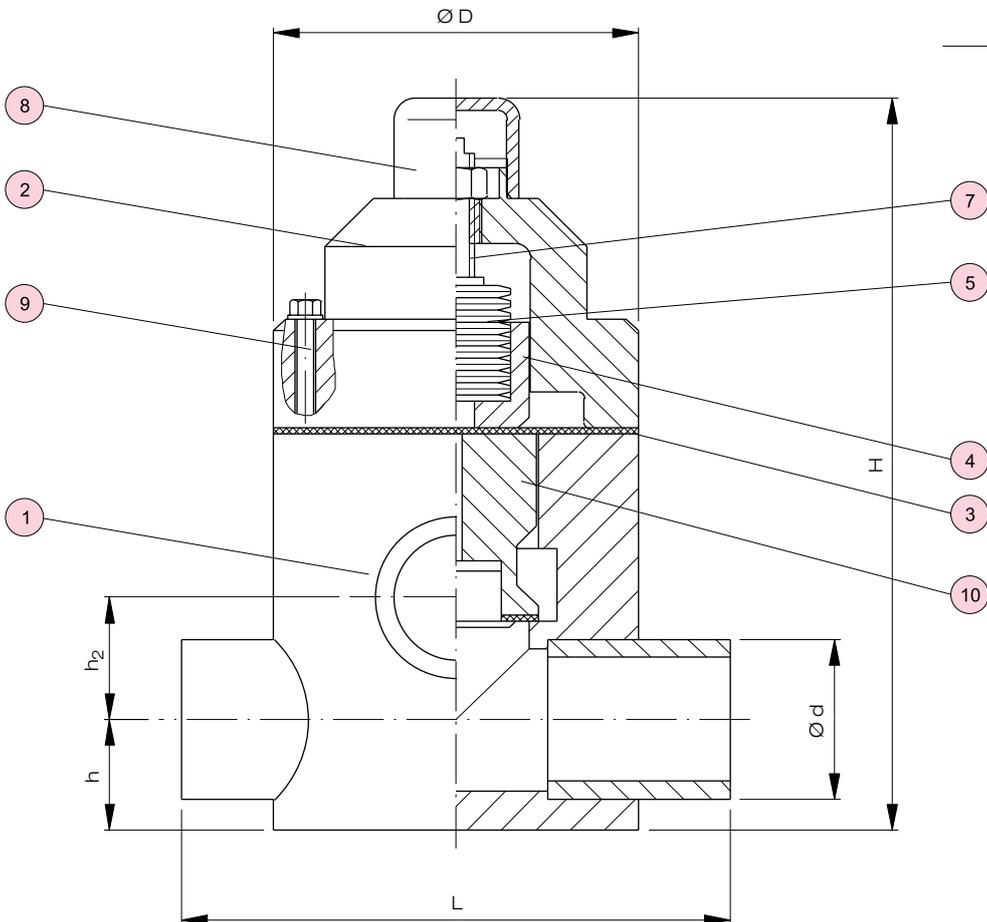
Pressure relief valve type V 85 and type V 185

Cement- / welding spigot

V 185 (DN 15 – DN 50)



V 85 (DN 65 – DN 100)



Pressure relief valve type V 85 and type V 185

No.	Description	Number	Material
1	Base plate	1	PVC-U, PP, PVDF
2	Bonnet	1	PVC-U, PP, PVDF
3	Diaphragm ^{*)}	1	PTFE, EPDM
4	Thrust piece	1	PP
5	Pressure spring ^{*)}	1	Spring steel

No.	Description	Number	Material
6	Spring plate	1	Aluminum alloy
7	Adjustment screw / nut	1	A2 - 1.4301 (SUS 304)
8	Cap	1	PVC, PP
9	Screw set	1	A2 - 1.4301 (SUS 304)
10	Piston complete ^{*,1)}	1	PVC-U, PP, PVDF

¹⁾ only DN 65 – DN 100

^{*)} Wearing parts / recommended spare parts

Description

- Pressure relief valves V 85 and V 185 protect systems and piping systems against overpressure and pressure peaks.
- The third pipe socket (overflow outlet) integrated in the valve body allows installation directly into the main pipe.
- Flow-optimized design of the lower part results in only a small pressure loss in the passage.

Functionality

By a preloaded spring with a compression piece the preformed diaphragm (V 186) or the piston (V 86) is pressed against the sealing seat of the overflow outlet. In the initial state the overflow outlet is closed, there is no through flow. Exceeds the system pressure acting on the diaphragm the value of the set spring force, the overflow outlet becomes released and the medium can drain off.

Working pressure p_B in bar

Body material	T_B [°C]	p_B [bar]		
		DN 10 – 50	DN 65 – 80	DN 100
PVC-U	0 up to 25	10	6	4
	40	6	6	4
	60	1	1	1
PP	- 10 up to 30	10	6	4
	40	7	6	4
	60	4,3	3,5	2,4
PVDF	80	1,7	1,3	1
	- 20 up to 40	10	6	4
	60	7,5	4,6	3
PVDF	80	5,3	3,3	2
	100	2	1	0,5

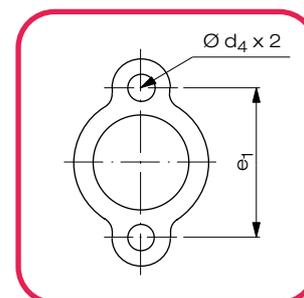
Special features

- Good control characteristic
- Installation independent of position
- Overflow outlet directly on the valve

Type V 185 additionally:

- Low maintenance due to simple construction
- Entire actuator mechanism hermetically sealed from the medium by diaphragm
- Nearly dead space free body
- Integrated support for plate and rail mounting

Connection for attachment DN 15 – DN 50 (type V 185)



DN	d_4	e_1
15	8,8	50
20	8,8	50
25	8,8	30
32	8,8	30
40	8,8	50
50	8,8	50

Dimensions and weights

Dimensions in mm												Weight in kg / pc.			
DN	d	D	h	h_2	H	PVC-U			PP / PVDF				PVC-U	PP	PVDF
						L ³⁾	z ⁴⁾	L _f ⁵⁾	L ⁶⁾	z ⁷⁾	L _f ⁵⁾	L _s ⁸⁾			
15	20	83	20	-	137	134	160	140	158	184	168	272	0,5	0,4	0,7
20	25	83	20	-	137	134	160	140	158	184	168	278	0,5	0,4	0,7
25	32	112	27	-	199	174	200	180	198	224	210	324	1,3	0,9	1,7
32	40	165	43	-	199	174	204	180	202	232	210	334	1,3	0,9	1,7
40	50	165	43	-	290	224	258	230	256	291	266	397	6,5	4,5	8,1
50	63	165	43	-	290	244	286	250	256	298	266	380	6,6	4,6	8,3
65	75	180	45	70	275	284	-	290	284	-	296	-	8,2	6,3	14,8
80	90	200	90	95	410	300	-	310	300	-	310	-	12,8	9,5	16,2
100	110	250	70	110	485	380	-	390	380	-	390	-	22,7	19,9	33,8

Dimensions and weights for other connections see L7 – 44

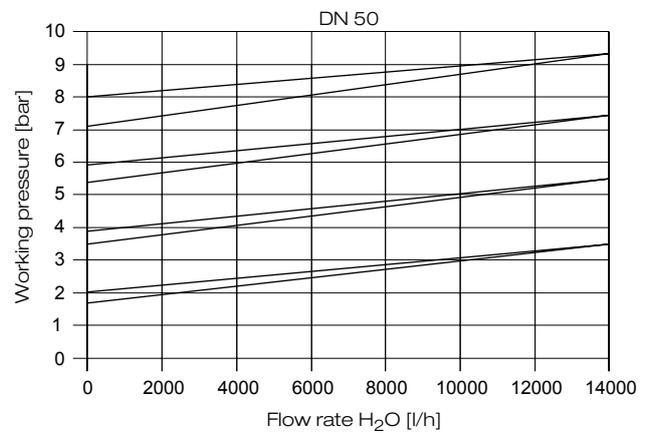
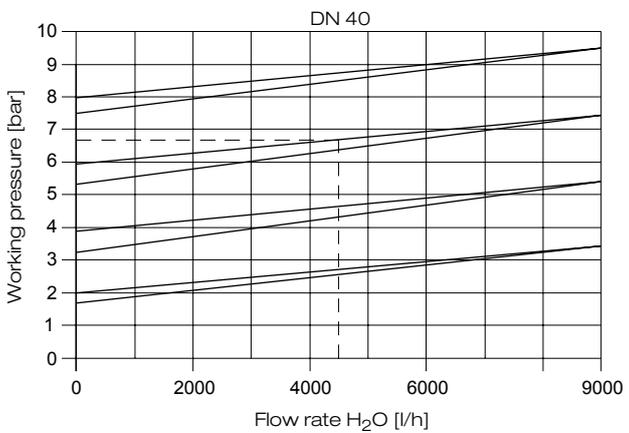
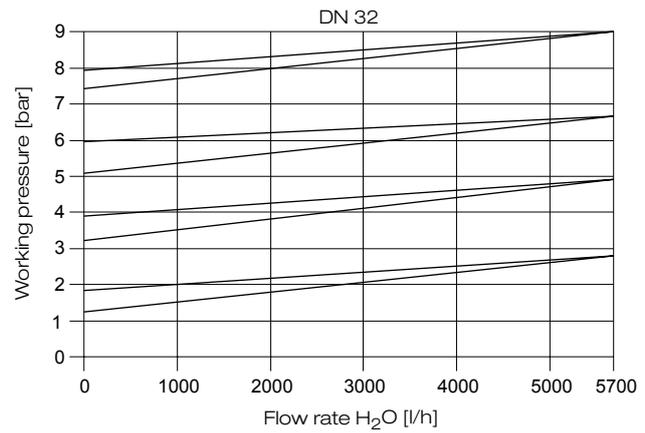
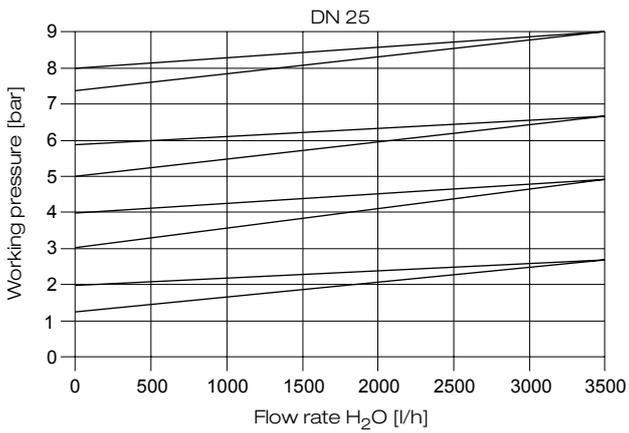
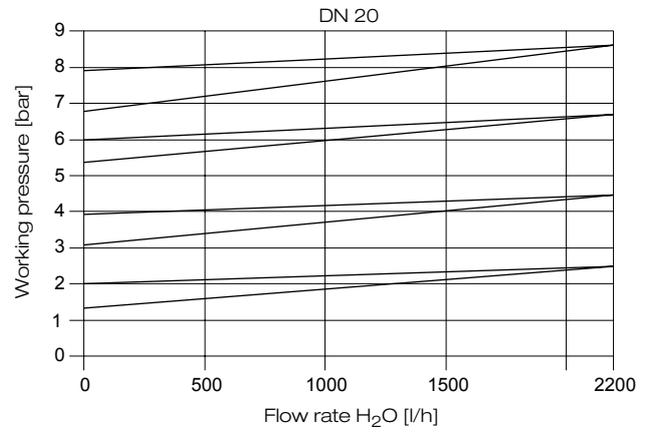
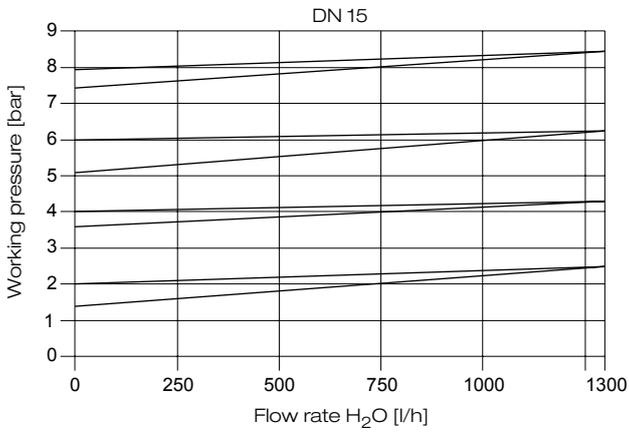
³⁾ Cement spigot ⁴⁾ Union with cement socket ⁵⁾ Flange ⁶⁾ Welding spigot (IR or butt) ⁷⁾ True union with welding socket

⁸⁾ True union with welding spigot

- For the installation length of the 3rd spigot, divide the dimensions L, L_f, L_s, z by 2 -

Pressure relief valve type V 85 and type V 185

Characteristic graphs



Example DN 40:

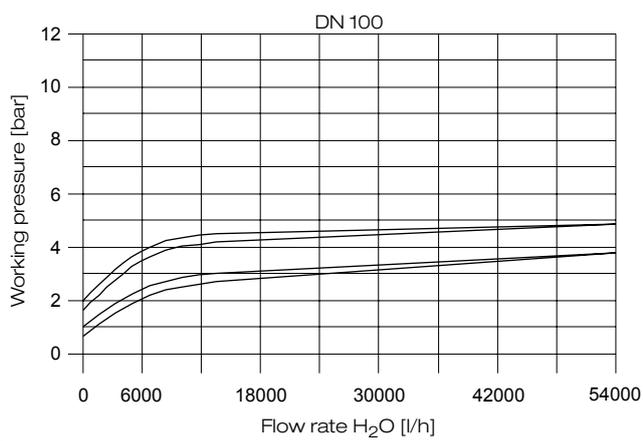
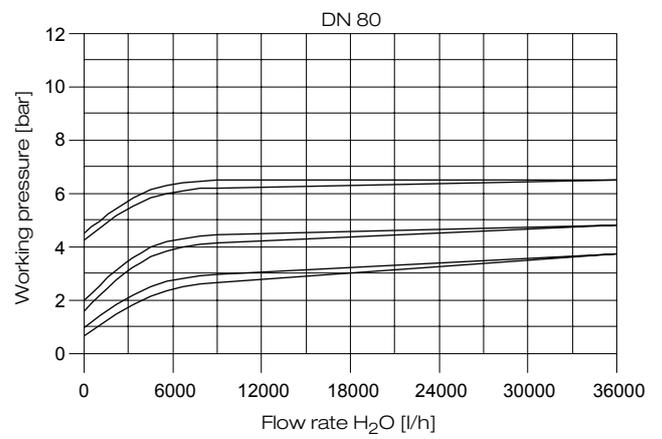
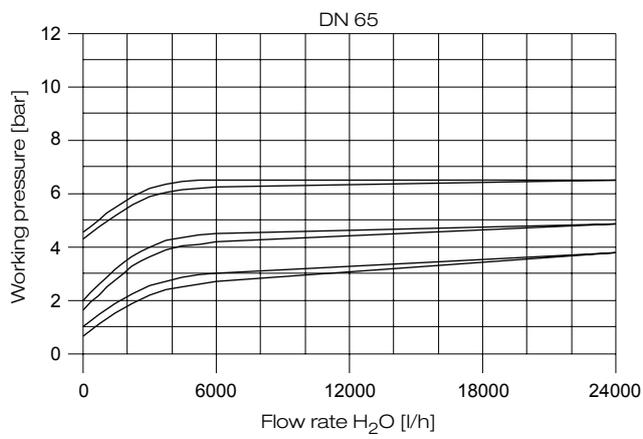
Flow: 4500 l/h

Working pressure: 6,7 bar

With the given parameters, the pressure relief valve type V 185, DN 40 shows a pressure increase of 0,7 bar and a hysteresis of 0,3 bar.

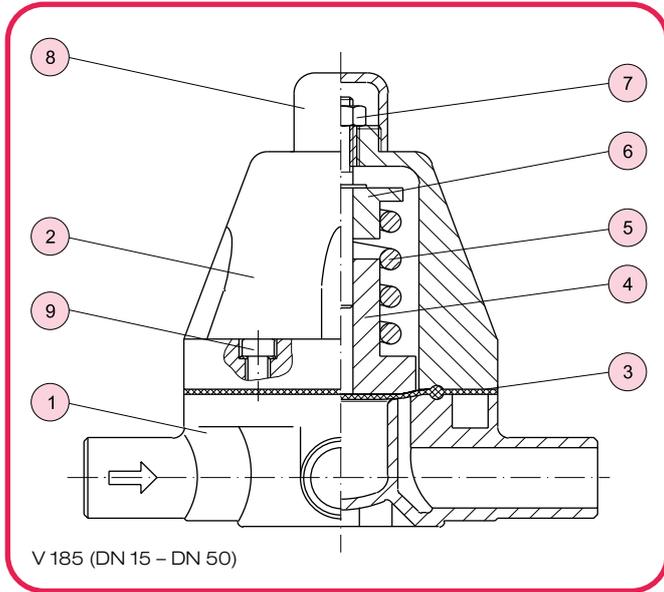
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Characteristic graphs



Pressure relief valve type V 85 and type V 185

Maintenance manual and mounting instructions



Tightening torque Md
for body connection in Nm

DN	15/20	25/32	40	50	65	80	100
Md	9	12	20	20	29	29	29

Notes for correct installation

- Installation and operation should be performed by qualified personnel and in compliance with all safety regulations (eg UVV etc.) and common technical rules.
- The valve must be installed stress-free in the pipeline (plane parallelism, axial, length). If possible, use three detachable pipe connections (flange or screw connection).
- Flange connection:
Connecting bolts have to be tighten evenly crosswise (observe the tightening torques of the screws). For plastic flanges in general washers have to be provided for bolts and nuts.
- Cement / welding socket, cement / welding spigot:
For the gluing or welding connection the relevant guidelines (e.g. DVS) have to be noted.
- Before commissioning the bolt torques on the housing must be checked and retightened if necessary.

Disassembling the valve

Attention: Never dismantle the valve when the pipe is under pressure.

- Put the valve in an upright position, turn off cap 8.
- Release counter nut on adjusting screw 7 and turn the screw counterclockwise until the compression spring 5 is completely relieved.
- Loosen the connecting screw 9 on the housing and lift off the upper part of the valve.
- Remove: spring plate 6, pressure spring 5, thrust piece 4, diaphragm 3 and piston (type V 85; s.p. L7 – 12).

Assembling of the valve

- The valve assembly is to be performed in reverse order to the disassembly.
- Before the assembly all parts have to be checked for damages.
- All parts have to be clean.
- Screws 9 have to be mounted evenly and crosswise according to the torques (see above).
- After assembly carry out a pressure test acc. to DIN EN 12266-1.

Adjusting the working pressure

- Remove cap 8, loosen lock nut.
- **Increase working pressure:**
Turn adjusting screw 7 clockwise.
- **Decrease working pressure:**
Turn adjusting screw 7 counterclockwise.
- Lock adjusting screw 7 with lock nut and mount cap 8.

Maintenance

- The valves are nearly maintenance-free.
- For heavily soiled and particle-carrying media, depending on the degree of soiling, cleaning is recommended at appropriate intervals.
- For cleaning, disassemble the valve into individual parts (for instructions, see „Disassembling the valve“).
- Depending on the operating conditions and operating time, various components may show signs of wear.
- As spare parts we recommend: diaphragm 3, compression spring 5, adjusting screw 7 with nut.

Trouble shooting

Disorder	Cause	Elimination
Leakage on the adjusting screw	Diaphragm defective	Replace diaphragm
Leakage between upper and lower part	Housing screws loose	Retighten screws acc. table screw tightening torques
Valve does not close properly	Sealing seat is dirty or damaged	Clean sealing seat and check for damages